LIST OF CONTENTS

NUMBER 1

B.-H. Lee, Y.-H. Koo, J.-S. Cheon and **D.-S. Sohn**	1	Modeling of creep behavior of Zircaloy-4 by considering metallurgical effect
J.V.P. de Oliveira, A.V. Cardona and **M.T.M.B. de Vilhena**	13	Solution of the one-dimensional time-dependent discrete ordinates problem in a slab by the spectral and LTS_N methods
Y.-B. Lee, W.P. Chang, Y.M. Kwon, K.S. Jeong and **D. Hahn**	21	Development of a two-dimensional model for the thermohydraulic analysis of the hot pool in liquid metal reactors
M. Sadighi, S. Setayeshi and **A.A. Salehi**	41	PWR fuel management optimization using neural networks
H. Sakane, Y. Kasugai, M. Shibata, T. Iida, A. Takahashi, T. Fukahori and **K. Kawade**	53	Measurement of activation cross-sections of (n, np + d) reactions producing short-lived nuclei in the energy range between 13.4 and 14.9 MeV using an intense neutron source OKTAVIAN
R.S. Modak and **D.C. Sahni**	67	Time-dependent pseudo-reciprocity relations in neutronics
C. Demazière and **I. Pázsit**	75	Theoretical investigation of the MTC noise estimate in 1-D homogeneous systems
Technical note		
S.R. Malkawi and **N. Ahmad**	101	Determination of neutron energy spectrum at a pneumatic rabbit station of a typical swimming pool type material test research reactor

NUMBER 2

B.W. Patton and **J.P. Holloway**	109	Application of preconditioned GMRES to the numerical solution of the neutron transport equation
V. Arzhanov	137	Monotonicity properties of k_{eff} with shape change and with nesting
S. Martorell, A. Sánchez, S. Carlos and **V. Serradell**	147	Simultaneous and multi-criteria optimization of TS requirements and maintenance at NPPs
I. Pázsit, Z.F. Kuang and **A.K. Prinja**	169	A unified theory of zero power and power reactor noise via backward master equations

M.M.R. Williams 193 Critical conditions in an infinitely reflected, multiplying slab using two-group, integral transport theory

NUMBER 3

Y. Rugama, J.L. Muñoz-Cobo and **T.E. Valentine** 215 Modal influence of the detector location for the noise calculation of the ADS

T. Tambouratzis and **M. Antonopoulos-Domis** 235 Instability localization with artificial neural networks (ANNs)

A. Hämäläinen, R. Kyrki-Rajamäki, S. Mittag, S. Kliem, F.P. Weiss, S. Langenbuch, S. Danilin, J. Hadek and **G. Hegyi** 255 Validation of coupled neutron kinetic/thermal-hydraulic codes. Part 2: Analysis of a VVER-440 transient (Loviisa-1)

Y.-H. Koo, B.-H. Lee, J.-S. Cheon and **D.-S. Sohn** 271 Modeling and parametric studies of the effect of inhomogeneity on fission gas release in LWR MOX fuel

S.O. Akansu and **S. Ünalan** 287 Investigation of the flattened fissile fuel enrichment possibility with a (D, T) driven hybrid blanket cooled by flibe (Li_2BeF_4)

W.-S. Kim, Y.-G. Kim and **Y.-J. Kim** 303 A subchannel analysis code MATRA-LMR for wire wrapped LMR subassembly

NUMBER 4

S. Santandrea and **R. Sanchez** 323 Acceleration techniques for the characteristic method in unstructured meshes

G.C. Bakos 353 Description and modelling of a standard low level environmental radionuclide calibration facility

A. Fessler and **D.L. Smith** 363 Parameter sensitivities in nuclear reaction cross-section calculations

M.M.R. Williams 385 On Galanins constant in the source-sink method

D.C. Sahni and **N.G. Sjöstrand** 415 Variation of transmitted particle flux with strength of forward and backward scattering in deep penetration problems

Y.H. Choi, K.M. Lim, D. Yu, H.G. Park, Y.G. Choi and **C.M. Lee** 429 Transfer pathways of ^{54}Mn, ^{57}Co, ^{85}Sr, ^{103}Ru and ^{134}Cs in rice and radish plants directly contaminated at different growth stages

J.H. Park and **P.H. Seong** 447 An integrated knowledge base development tool for knowledge acquisition and verification for NPP dynamic alarm processing systems

Technical notes

J.-H. Moon and **C.-S. Kang** 465 Potential impacts to operating nuclear power plants due to application of revised source term

Aslam and **N. Ahmad** 477 Effect of coolant channel width on group constants and multiplication factor of research reactors using MTR type low enriched uranium fuel

489 Book review

NUMBER 5

C. Hoggett-Jones, C. Robbins, G. Gettinby and **S. Blythe** 491 Modelling the inventory and impact assessment of partitioning and transmutation approaches to spent nuclear fuel management

W.S. Yang 509 Blanket design studies for maximizing the discharge burnup of liquid metal cooled ATW systems

J.T. Mihalczo, J.J. Lynn, J.R. Taylor, G.E. Hansen and **D.B. Pelowitz** 525 Delayed critical ORNL unreflected uranium (93.20) metal sphere and the pure unreflected uranium (93.80) sphere critical mass

G.A. Gonçalves, G. Orengo, M.T.M.B. de Vilhena and **C.O. Graça** 561 LTS_N solution of the adjoint neutron transport equation with arbitrary source for high order of quadrature in a homogeneous slab

H.Y. Jeong 571 Prediction of counter-current flow limitation at hot leg pipe during a small-break LOCA

J. Solís-Rodarte, H. Fu, K.N. Ivanov, Y. Matsui and **A. Hotta** 585 Developing and modeling of the "Laguna Verde" BWR CRDA benchmark

V. Barchevtsev, H. Ninokata and **V. Artisyuk** 595 Potential to approach the long-life core in a light water reactor with uranium oxide fuel

W.K. In, D.H. Hwang, Y.J. Yoo and **S.Q. Zee** 609 Assessment of core protection and monitoring systems for an advanced reactor SMART

Technical notes

A. Gandini 623 On the evaluation of ADS subcriticality

S. Şahin and **A. Şahinaslan** 631 Neutron and gamma ray heating in the grazing incident liquid metal mirrors for laser inertial fusion energy power plants

Y. Ronen 639 Applications of the Feynmann–Hellmann theorem to the transport equation

NUMBER 6

A. Gandini	645	On the multiplication factor and reactivity definitions for subcritical reactor systems
A. DallOsso	659	A transverse buckling based method in core neutronics models equivalence
O.P. Singh and **R. Harish**	673	Energetics of core disruptive accident for different fuels for a medium sized fast reactor
M.M.R. Williams	685	Neutron transport in two interacting slabs
L.P. Hong, T. Taryo, T.M. Sembiring, S. Hiroshi and **N. Yoshitaka**	701	Study on the control rod interaction effect in RSG gas multipurpose reactor (MPR-30)
O.F. Smidts	717	Applications of an adjoint Monte Carlo method to the underground migration of radionuclides over large scales
M.N. Khajavi, M.B. Menhaj and **A.A. Suratgar**	751	A neural network controller for load following operation of nuclear reactors
Technical notes		
A. Novelli	761	An upgraded version of the AMEBA PWR
A.L. Costa and **C. Pereira**	767	An evaluation of the Americium insertion in UO_2 fuel

NUMBER 7

M.M.R. Williams	777	The integral form of the neutron transport equation for backward–forward scattering in bare spheres
M. Constantin and **V. Balaceanu**	791	Void reactivity and pin power calculation for a typical CANDU cell using CPs and a two-stratified coolant model
G.-C. Lee, W.-P. Baek and **S.H. Chang**	805	Improved methodology for generation of axial flux shapes in digital core protection systems
D. Yu	821	Modeling and measuring the effects of imprecision in accident management
H.T. Kim and **H.C. No**	835	Assessment of RELAP5/MOD3.2.2γ against flooding database in horizontal-to-inclined pipes
J.S. Warsa	851	Analytical S_N solutions in heterogeneous slabs using symbolic algebra computer programs
F. Rahnema and **M.S. McKinley**	875	High-order cross-section homogenization method

NUMBER 8

H.M. Dalle, C. Pereira and **R.G.P. Souza**	901	Neutronic calculation to the TRIGA Ipr-R1 reactor using the WIMSD4 and CITATION codes
B. Neta, S. Reich and **H.D. Victory, Jr.**	913	Galerkin spectral synthesis methods for diffusion equations with general boundary conditions
E.J. Allen and **R.M. Berry**	929	The inverse power method for calculation of multiplication factors
J.K. Watson and **K.N. Ivanov**	937	Improved cross-section modeling methodology for coupled three-dimensional transient simulations
F. Giacobbo, M. Marseguerra and **E. Zio**	967	Solving the inverse problem of parameter estimation by genetic algorithms: the case of a groundwater contaminant transport model
A.H. El-Kateb, M.S. Abu El-Magd and **S.K. Sayed**	983	Determination of γ-spectrometric parameters for Na_2CO_3 and H_2O in Na_2CO_3-water solution
A.H. El-Kateb, R.A.M. Rizk and **A.M. Abdul-Kader**	991	Determination of aluminium concentration in copper–aluminium alloys using γ-ray transmission techniques
B. Quintero-Leyva, E.B. Gibson and **R.L. Miller**	1003	Sub-critical moderator temperature reactivity coefficient: measurement at Edwin I. Hatch unit 2 BWR nuclear power plant
Technical note		
Y. Ronen	1013	The relation between ternary fission and cluster decay

NUMBER 9

M.M.R. Williams, M.C. Thorne, J.G. Thomson and **A. Paulley**	1019	Development of a solution method for the differential equations arising in the biosphere module of the BNFLs suite of codes MONDRIAN
I.D. Christoskov and **P.T. Petkov**	1041	A practical procedure of bilinear weighted core kinetics parameters computation for the purpose of experimental reactivity determination
G.E. Sjoden	1055	Deterministic adjoint transport applications for He-3 neutron detector design
M.E. Pomerantz, C.R. Calabrese and **C. Grant**	1073	Nuclear reactor power and flux distribution fitting from a diffusion theory model and experimental data
S. Ganesan, A.R. Sharma and **H. Wienke**	1085	New investigations of the criticality property of pure ^{232}U

V.G. Zimin and **D.M. Baturin** 1105 Polynomial nodal method for solving neutron diffusion equations in hexagonal-z geometry

M. Adib, K. Naguib, A. Ashry and **M. Fathalla** 1119 On the use of lead as a neutron filter

Technical note

M.A. Ibrahim 1131 Heat generation and corresponding rise in temperature due to absorption of thermal neutrons in several shielding materials

Letters to the Editor

H. van Dam 1137

V. Arzhanov 1139

NUMBER 10

J. Zabadal, M.T. Vilhena, C.F. Segatto and **R.P. Pazos** 1141 Determination of a closed-form solution for the multidimensional transport equation using a fractional derivative

N.R. Corngold 1151 On the collision probability for the infinite cylinder

J. Yoon, T. Ro, S. Lee, S. Yamamoto and **K. Kobayashi** 1157 Measurement of neutron capture cross-section of indium in the energy region from 0.003 eV to 30 keV

R. Miró, D. Ginestar, G. Verdú and **D. Hennig** 1171 A nodal modal method for the neutron diffusion equation. Application to BWR instabilities analysis

S. Sheibani, F. Moattar, M. Ghannadi Maragheh and **H. Khalafi** 1195 Investigation of a simple and efficient method for silicon neutron transmutation doping process in Tehran research reactor

H. Sakane, Y. Kasugai, M. Shibata, Y. Ikeda and **K. Kawade** 1209 Measurement of the activation cross-sections of $(n,np+d)$ reactions for lanthanide isotopes in the energy range between 13.4 and 14.9 MeV

M. Boroushaki, M.B. Ghofrani and **C. Lucas** 1225 Identification of a nuclear reactor core (VVER) using recurrent neural networks

Technical notes

A.B. Smith 1241 The interaction of fast neutrons with hafnium

L. Ali Khan and **N. Ahmad** 1253 Reactivity worth of the thermal column of a MTR type swimming pool research reactor using low enriched uranium fuel

NUMBER 11

G. Espinosa-Paredes, O. Cazarez-Candia, A. Garcia-Gutierrez and **J. Martinez-Mendez**	1261	Void fraction propagation in a bubbly two-phase flow with expansion effects
T. Tambouratzis and **M. Antonopoulos-Domis**	1299	A non-stationary signal correlator for on-line transit time estimation
C. Housiadas	1315	Lumped parameters analysis of coupled kinetics and thermal-hydraulics for small reactors
Y.P. Mahlers	1327	Core reload optimization for equilibrium cycles using simulated annealing and successive linear programming
W.K. Terry, H.D. Gougar and **A.M. Ougouag**	1345	Direct deterministic method for neutronics analysis and computation of asymptotic burnup distribution in a recirculating pebble-bed reactor
Technical notes		
I. Khamis	1365	Evaluation of the photo-neutron source in the Syrian miniature neutron source reactor
F. Anlı	1373	The stochasticity treatment on the reactivity and criticality thickness in slab geometry

NUMBER 12

G.C. Bakos	1381	Direct heat generation and corresponding energy saving in nuclear reactors due to optimum synthesis of shielding materials
H. Yapıcı and **V. Özceyhan**	1389	Neutronic analysis of an inertial fusion energy breeder with SiC_f/SiC
C. Yin and **B. Su**	1403	A nonlinear diffusion theory for particle transport in strong absorbers
G. Házi, A.R. Imre, G. Mayer and **I. Farkas**	1421	Lattice Boltzmann methods for two-phase flow modeling
L. Machado and **R. Schirru**	1455	The Ant-Q algorithm applied to the nuclear reload problem
Technical notes		
H. Yapıcı, V. Özceyhan and **O. Ipek**	1471	Integral data for incident fusion source neutrons in infinite medium
K. Behringer and **D. Hennig**	1483	A novel auto-correlation function method for the determination of the decay ratio in BWR stability analysis

NUMBER 13

O. Ipek 1505 Investigation of the infinite medium integral neutronic data for incident fusion source neutrons

G.Th. Analytis and **P. Coddington** 1525 Analysis and sensitivity studies of postulated SB-LOCAs in the Mühleberg (KKM) BWR/4 by TRAC-BF1

M.M.R. Williams 1551 Neutron transport in two interacting slabs II: the influence of transverse leakage

M. Jae and **J.H. Moon** 1597 Use of a fuzzy decision-making method in evaluating severe accident management strategies

Technical notes

N.G. Sjöstrand 1607 What is the average chord length?

M. Iqbal, M. Abdullah and **S. Pervez** 1609 Parametric tests and measurements after shimming of a beryllium reflector in a miniature neutron source reactor (MNSR)

NUMBER 14

G.C. Bakos and **N.F. Tsagas** 1625 Heat generation and corresponding energy saving in shielding materials due to different geometry radioactive sources

N. Kriangchaiporn, K.N. Ivanov and **R.J.J. Stamm'ler** 1633 HELIOS: analysis of MOX critical experiments

S. Şahin, H.M. Şahin and **K. Yıldız** 1641 Investigation of the effects of the resonance absorption in a fusion breeder blanket

M.M.R. Williams 1661 The effect of random geometry on the time constant of a multiplying system

M. Eriksson and **J.E. Cahalan** 1689 Inherent shutdown capabilities in accelerator-driven systems

V.M. Maslov, Y.V. Porodzinskij, M. Baba and **A. Hasegawa** 1707 Evaluation of the unresolved resonance range of ^{238}U

C.J. Jeong and **H.C. Suk** 1721 Assessment of core characteristics during transition from 37-element fuel to CANFLEX-NU fuel in CANDU 6

Technical note

T.K. Thiyagarajan, S. Ganesan, V. Jagannathan and **R. Karthikeyan** 1735 A computer program with graphical user interface to plot the multigroup cross sections of WIMS-D library

NUMBER 15

T. Ohnishi	1747	A multi-particle model applicable to social issues—time-evolution of Japanese public opinion on nuclear energy
N. Guessous and **M. Akhmouch**	1765	Higher order analytical nodal methods in response-matrix formulation for the multigroup neutron diffusion equations
G.F. Quinteiro and **C.R. Calabrese**	1779	Characterization and optimization analysis of a BNCT biological facility
Y.-W. Chang and **P.-H. Seong**	1795	A signal pattern matching and verification method using interval means cross correlation and eigenvalues in the nuclear power plant monitoring systems
J.H. Jeong and **Y.C. Kweon**	1809	The effect of tube rupture location on the consequences of multiple steam generator tube rupture event
C.J. Jeong	1827	An on-line fuel management method using in-core detector readings for CANDU reactors
M.P. de Abreu	1837	Numerical methods for the generation of the spectrum of the multigroup slab-geometry discrete ordinates operator in neutron transport theory
J.A.M. de Mello and **R.C. Barros**	1855	An exponential spectral nodal method for one-speed X,Y-geometry deep penetration discrete ordinates problems

NUMBER 16

H. Yapıcı, M. Übeyli and **Ş. Yalçın**	1871	Neutronic analysis of PROMETHEUS reactor fueled with various compounds of thorium and uranium
J.L. Muñoz-Cobo, M.Z. Podowski and **S. Chiva**	1891	Parallel channel instabilities in boiling water reactor systems: boundary conditions for out of phase oscillations
V. Barchevtsev, V. Artisyuk and **H. Ninokata**	1919	Double-strata high burnup fuel performance in light water reactors
A. Gupta and **R.S. Modak**	1933	On the use of the conjugate gradient method for the solution of the neutron transport equation
J.L. François, C.M. del Campo and **J. Hernández**	1953	Design of an overmoderated fuel and a full MOX core for plutonium consumption in boiling water reactors

Technical notes

A. Kumar, U. Kannan and **R. Srivenkatesan** 1967 Sensitivity analysis for AHWR fuel cluster parameters using different WIMS libraries

A. El-Sayed Abdo 1977 Calculation of the cross-sections for fast neutrons and gamma-rays in concrete shields

M.B. Ghofrani and **S.A. Damghani** 1989 Determination of the safety importance of systems of the Tehran research reactor using a PSA method

NUMBER 17

G.F. Cuevas Vivas, T.A. Parish and **G.L. Curry** 2001 Optimization of MOX enrichment distributions in typical LWR assemblies using a simplex method-based algorithm

M. Bostan and **E. Gültekin** 2019 Cross-section measurements for the (n,p) and (n,α) reactions on ^{23}Na and for the (n,p) reaction on ^{26}Mg at the neutron energies from 13.6 to 14.9 MeV

W. Lee and **G. Cho** 2029 Pinhole collimator design for nuclear survey system

T.-K. Kim, J.-H. Baek, B.-S. Choi, Y.-H. Jeong, D.-J. Lee and **M.-H. Chang** 2041 Characteristics of hydriding and hydrogen embrittlement of the Ti–Al–Zr alloy

K.-S. Jeong, K.-R. Kim, W.-D. Jung and **J.-J. Ha** 2055 Development of severe accident management advisory and training simulator (SAMAT)

M. Auxiliadara Fortini and **M.A. Veloso** 2071 CHF prediction in nuclear fuel elements by using round tube data

H. Akkurt and **Ü. Çolak** 2087 PWR system simulation and parameter estimation with neural networks

T. Jevremovic, T. Ito and **Y. Inaba** 2105 ANEMONA: multiassembly neutron transport modeling

NUMBER 18

J. Solís, M.N. Avramova and **K.N. Ivanov** 2127 Temporal adaptive algorithm for TRAC-BF1/NEM/COBRA-TF coupled calculations in BWR safety analysis

V. Arzhanov 2143 Multi-group theory of neutron noise induced by vibrating boundaries

A.E. Aboanber and **Y.M. Hamada** 2159 PWS: an efficient code system for solving space-independent nuclear reactor dynamics

Marsodi, A.S. Lasman, K. Nishihara, T. Osugi, K. Tsujimoto, Marsongkohadi and **Z. Suud** 2173 Burn-up characteristics of ADS system utilizing the fuel composition from MOX PWRs spent fuel

H. Yapıcı 2187 Temperature distribution in mixed ThO_2–UO_2 fuel rods located in blanket of an inertial fusion energy breeder

Technical notes

M.M.R. Williams and **J.S. Cassell** 2211 Neutron streaming in a cylindrical annulus: a review of theory and comparison of methods

I.H. Bokhari, M. Israr and **S. Pervez** 2225 Analysis of reactivity induced accidents at Pakistan Research Reactor-1

I. Farkas, G. Házi, G. Mayer, A. Keresztúri, G. Hegyi and **I. Panka** 2235 First experience with a six-loop nodalization of a VVER-440 using a new coupled neutronic-thermohydraulics system KIKO3D-RETINA V1.1D